

is provided on the inactive region 20 and is interposed between the source pad 12a and the source fingers 12b.

[0071] Three drain fingers 14b are provided for one drain pad 14a. The adjacent drain pads 14a are interconnected by a joining portion 14g. That is, the adjacent drain electrodes 14 are connected together. The joining portion 14g is provided on the inactive region 26 and is interposed between the drain pad 14a and the drain fingers 14b.

[0072] Two gate fingers 16b are provided for one gate pad 16a. The adjacent gate pads 16a are interconnected by a joining portion 16d. That is, the adjacent gate pads 16a are connected together. The joining portion 16d is provided on the inactive region 20 in the semiconductor substrate 10 and is interposed between the gate pad 16a and the gate fingers 16b.

[0073] The source pads 12a and the gate pads 16a are provided on the inactive region 20. One gate pad 16a is provided between the two source pads 12a. The drain pads 14a are provided in the inactive region 26. In other words, the source pads 12a are arranged along a side of the upper surface of the semiconductor substrate 10, and the drain pads 14a are arranged along the opposite side of the upper surface of the semiconductor substrate 10. Each of the two source fingers 12b located along the short sides of the semiconductor substrate 10 is associated with the next drain finger 14b is formed to have a straight side closer to the short side of the semiconductor substrate 10. Thus, the semiconductor device may be downsized.

[0074] According to the fifth embodiment, even when the electrodes are arranged in the form of tooth comb, the tolerable currents that flow through the electrodes may be increased and the semiconductor device may have a higher output power.

#### Sixth Embodiment

[0075] A sixth embodiment is an exemplary semiconductor device having a variation of the structures of the electrodes employed in the fifth embodiment. FIG. 11 is a plan view of a semiconductor device in accordance with the sixth embodiment.

[0076] Referring to FIG. 11, the source pads 12a are provided in the longest, finger portions of the source fingers 12b. The drain pads 14a are provided in the longest finger portions of the drain fingers 14b.

[0077] According to the sixth embodiment, like the fifth embodiment, even when the electrodes are arranged in the form of tooth comb, the tolerable currents that flow through the electrodes may be increased and the semiconductor device may have a higher output power. Further, like the third embodiment, the arrangements of the source pads 12a and the drain pads 14a in the respective longest finger portions may downsize the semiconductor device and reduce the thermal resistance.

[0078] The present invention is not limited to the specifically described embodiments, but other embodiments and variations may be made without departing from the scope of the present invention.

What is claimed is:

1. A semiconductor device comprising:

source electrodes that are provided on a semiconductor substrate and are having source fingers, the source fingers having stepwise side portions so that a length of the source fingers in a gate length direction decreases step-

wise in a direction from ends of the source fingers connected to source pads towards other ends;

drain electrodes that are provided on the semiconductor substrate and are having drain fingers, the drain fingers having stepwise side portions so that a length of the drain fingers in the gate length direction decreases stepwise in a direction from ends of the drain fingers connected to drain pads towards other ends, the stepwise side portions of the drain fingers corresponding to those of the source fingers; and

gate electrodes that are provided on the semiconductor substrate and have bent portions between steps formed in the stepwise side portions of the source fingers and steps formed in the stepwise side portions of the drain fingers, the gate electrodes being bent in the bent portions along the source fingers and the drain fingers,

a shape of the stepwise side portion of one of the source fingers and that of the stepwise portion of a corresponding one of the drain fingers being symmetrical about a midpoint of an imaginary line, that connects the other end of the one of the source fingers and the other end of the corresponding one of the drain fingers.

2. The semiconductor device according to claim 1, wherein the bent portions of the gate electrodes are provided on inactive regions formed in the semiconductor substrate and do not contact active regions formed in the semiconductor substrate.

3. The semiconductor device according to claim 1, wherein:

the gate electrodes are provided at both sides of at least, the source fingers or the drain fingers; and

the semiconductor device further comprises interconnections provided on at least the source fingers or the drain fingers and interconnect adjacent ones of the gate electrodes in the bent portions.

4. The semiconductor device according to claim 3, wherein:

the interconnections interconnect the adjacent ones of the gate electrodes in end portions of the gate electrodes and in the bent portions; and

the gate electrodes has a first finger portion between two of the bent portions and a second finger portion between one of the end portions and one of the bent portion, the first and second portions having an identical width.

5. The semiconductor device according to claim 3, wherein:

adjacent ones of the gate electrodes are not interconnected in the end portions;

the interconnections interconnect the adjacent ones of the gate electrodes in the bent portions; and

the gate electrodes has a first finger portion between two of the bent portions and a second finger portion between one of the end portions and one of the bent portion, the first portion being wider than the second portion.

6. The semiconductor device according to claim 3, wherein:

the source pads are provided in longest finger portions of the source fingers;

the drain pads are provided in longest finger portions of the drain fingers;

at least the source pads or the drain pads are formed between adjacent ones of the gate electrodes; and

at least the source pads or the drain pads pass through the semiconductor substrate.